

NOVEMBER 2018



UNDERSTANDING THE INFORMATION EXPERIENCE OF FAKE NEWS

NITIN VERMA, KENNETH R. FLEISCHMANN, KOLINA S. KOLTAI
School of Information, The University of Texas at Austin



Agenda

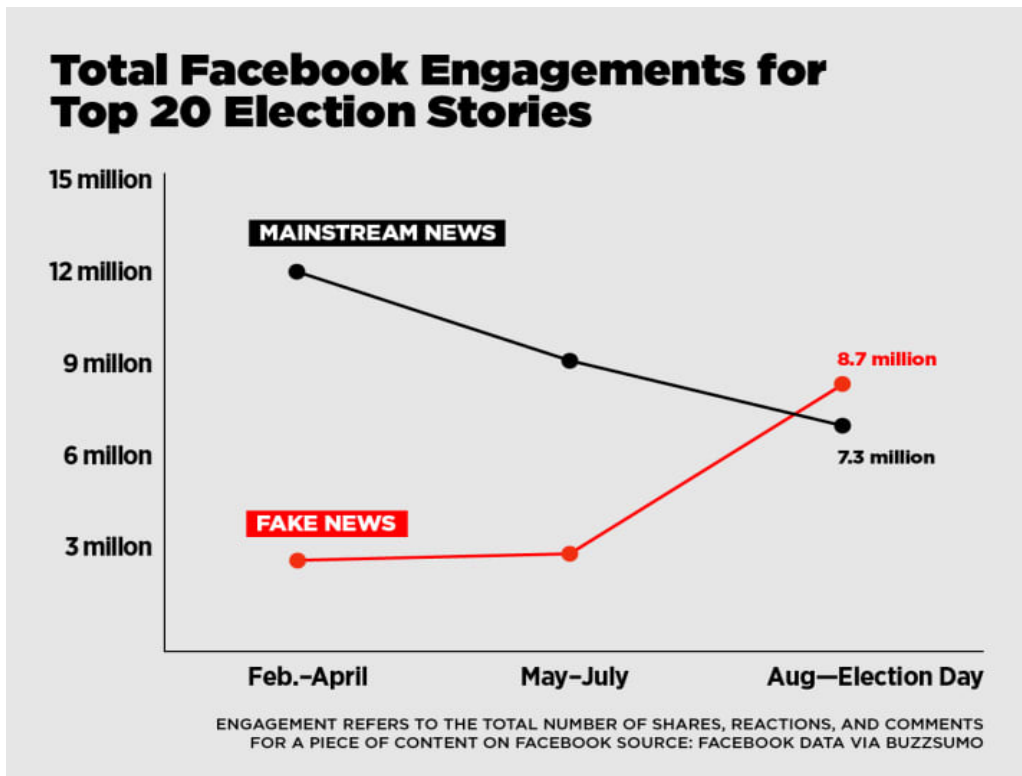
- Motivation
- What We Know and How
- New Research Questions
- Proposed Future Work
- Preliminary Hypotheses

Motivation

- People heavily reliant on **social media** for **news**
- Increased political **polarization**
- Media **fragmentation**

Motivation

On Facebook, fake news **outperformed** mainstream news media during 2016 US General Election Campaign Season



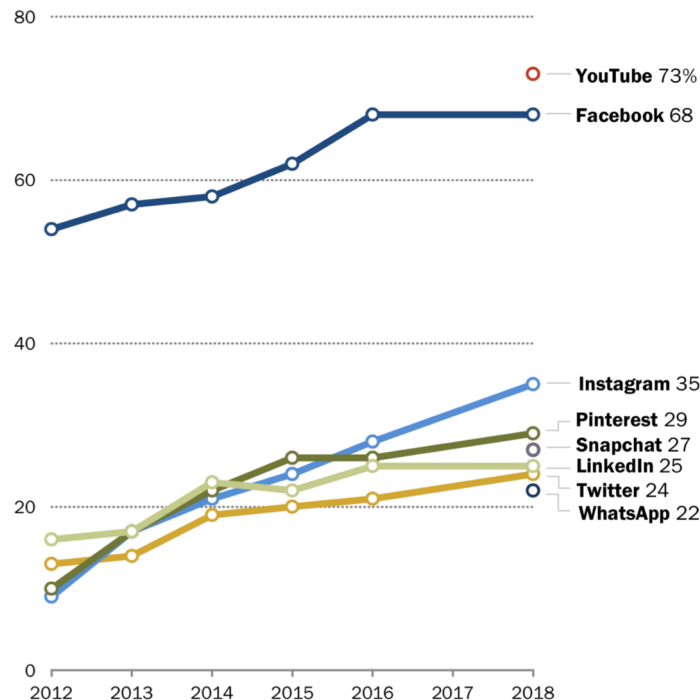
Source:
Craig Silverman, BuzzFeed

Prominence of Social Media

- More than **two-thirds** of US adults report using Facebook
- Steady increase in the usage of social media

Majority of Americans now use Facebook, YouTube

% of U.S. adults who say they use the following social media sites online or on their cellphone

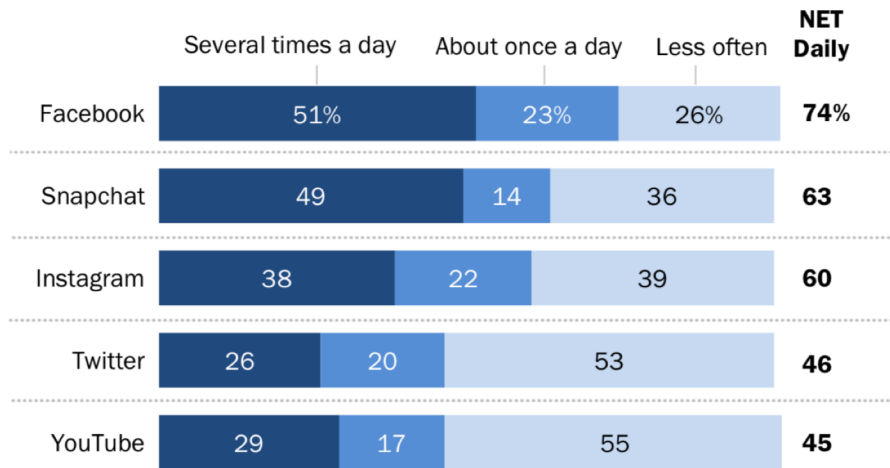


Note: Pre-2018 telephone poll data is not available for YouTube, Snapchat or WhatsApp.
Source: Survey conducted Jan. 3-10, 2018. Trend data from previous Pew Research Center surveys.
"Social Media Use in 2018"

PEW RESEARCH CENTER

A majority of Facebook, Snapchat and Instagram users visit these platforms on a daily basis

Among U.S. adults who say they use ___, the % who use each site ...



Note: Respondents who did not give answer are not shown. "Less often" category includes users who visit these sites a few times a week, every few weeks or less often.

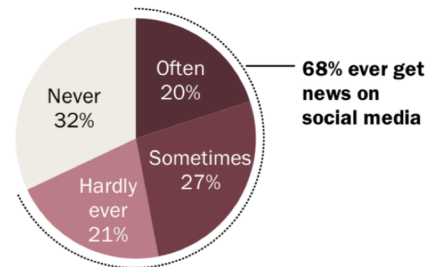
Source: Survey conducted Jan. 3-10, 2018.

"Social Media Use in 2018"

PEW RESEARCH CENTER

About two-thirds of Americans get news on social media

% of U.S. adults who get news on social media ...



But most social media news consumers expect news there to be inaccurate

% of social media news consumers who say they expect the news they see on social media to be ...



Note: No answer responses not shown.

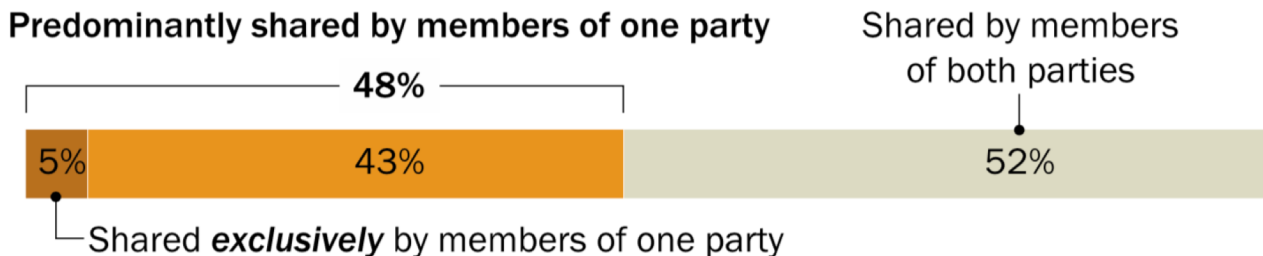
Source: Survey conducted July 30-Aug. 12, 2018.

"News Use Across Social Media Platforms 2018"

PEW RESEARCH CENTER

Nearly half of the links to national news outlets shared by lawmakers on Facebook were to outlets predominantly shared by one party

% of links to national news outlets shared by members on Congress on Facebook that were to outlets...



Note: 'Predominantly' means more than 75% of these outlets' shares came from one party.
Source: Pew Research Center Analysis of links shared by members of Congress on Facebook between Jan. 2, 2015 and July 20, 2017.

What We Know

- Significant relationship between **trust** and:
 - **Presence** of Hyperlinks to External Sources
 - **Type** of Hyperlink (Fake News, Mainstream Media, Scientific Journal)
 - Human **Values**
 - **Political** Leaning
 - **Frequency** of Social Media Use

How We Know

- MTurk study (N = 205) conducted in 2017
- Mock Twitter timeline with science news
 - Portrait Values Questionnaire
 - Trust ratings, demographic questionnaire
- Verma, N., Fleischmann, K. R., & Koltai, K. S. (*ASIS&T 2017*¹, *ASIS&T 2018*²).

Hyperlinks in Social Media Posts

- Inclusion of hyperlinks **increases trust**
- Scientific journals and mainstream media **more trusted** than fake news



Twitter User 1 @TwitterUser1 · Oct 16

Gene editing tested for the first time in humans

cnn.com/2016/11/15/health/china-human-gene-testing-crispr-cas9/



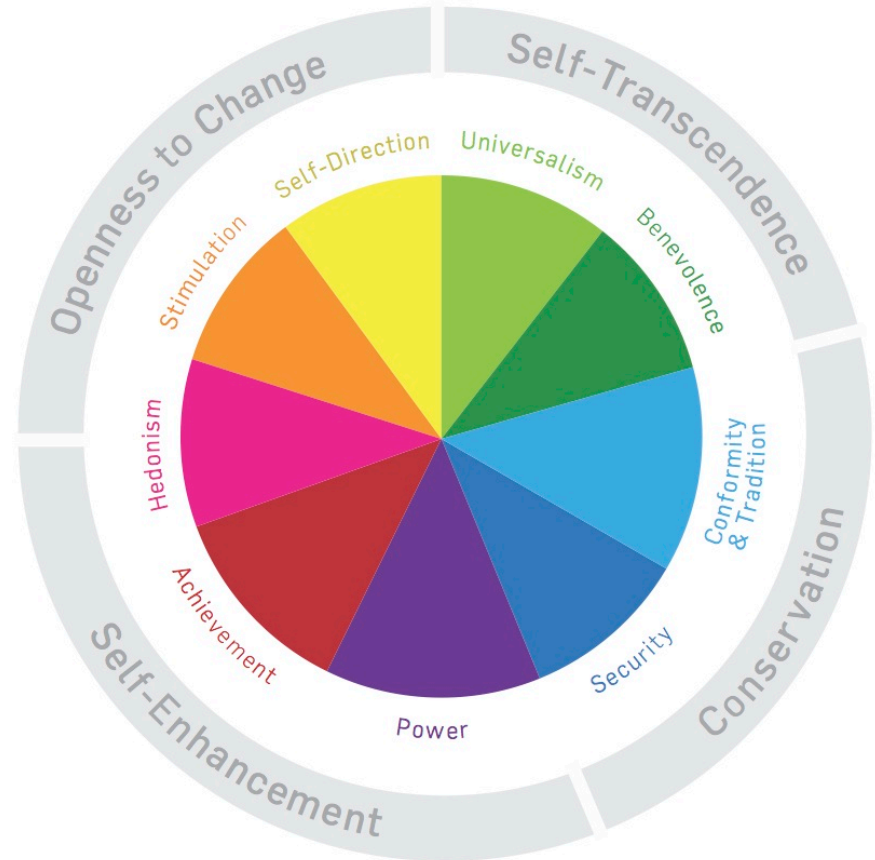
Twitter User 8 @TwitterUser8 · Oct 16

Study links gut bacteria with chronic fatigue syndrome

microbiomejournal.biomedcentral.com/articles/10.1186/s40168-016-0171-4

Human Values

- Influence attitudes, behavior, and sentiment³
- Guide attitudes toward complex issues⁴
- Schwartz's model of 10 Basic Human Values
 - Validated across many countries



Human Values

- Values influence trust in social media posts
- Influence more salient when links to external references not clicked

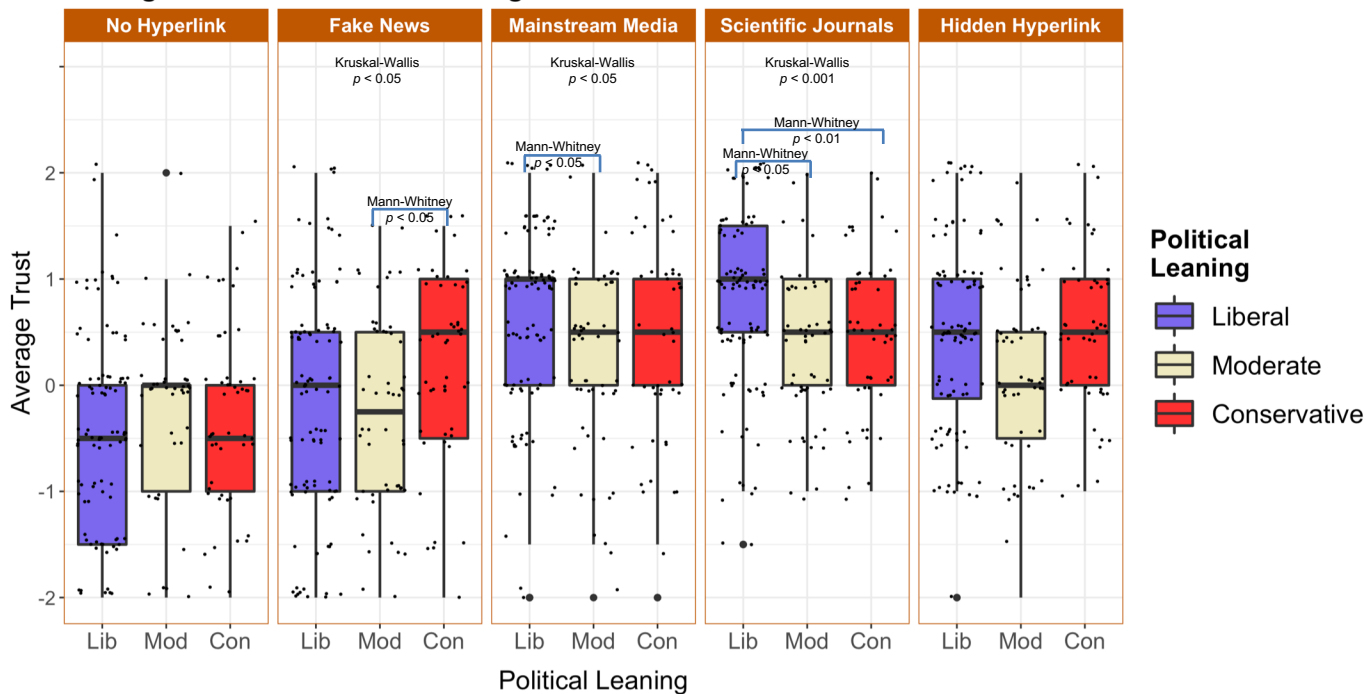
	Links not clicked					Links clicked			
Value	NH	FN	MM	SJ	HH	FN	MM	SJ	HH
Hedonism									
Stimulation									
Self-direction									
Universalism		↓↓		↑↑↑					
Benevolence		↓↓							
Conformity									
Tradition						↑↑			
Security			↑						
Power			↓						
Achievement			↓						

<i>NH</i>	<i>FN</i>	<i>MM</i>	<i>SJ</i>	<i>HH</i>
No Hyperlink	Fake News	Mainstream Media	Scientific Journal	Hidden Hyperlink

↑ : trust **increases** as importance of value **increases**
 ↓ : trust **decreases** as importance of value **decreases**
 ↑↑↑/↓↓↓: $p < 0.001$; ↑↑/↓↓: $p < 0.01$; ↑/↓: $p < 0.05$

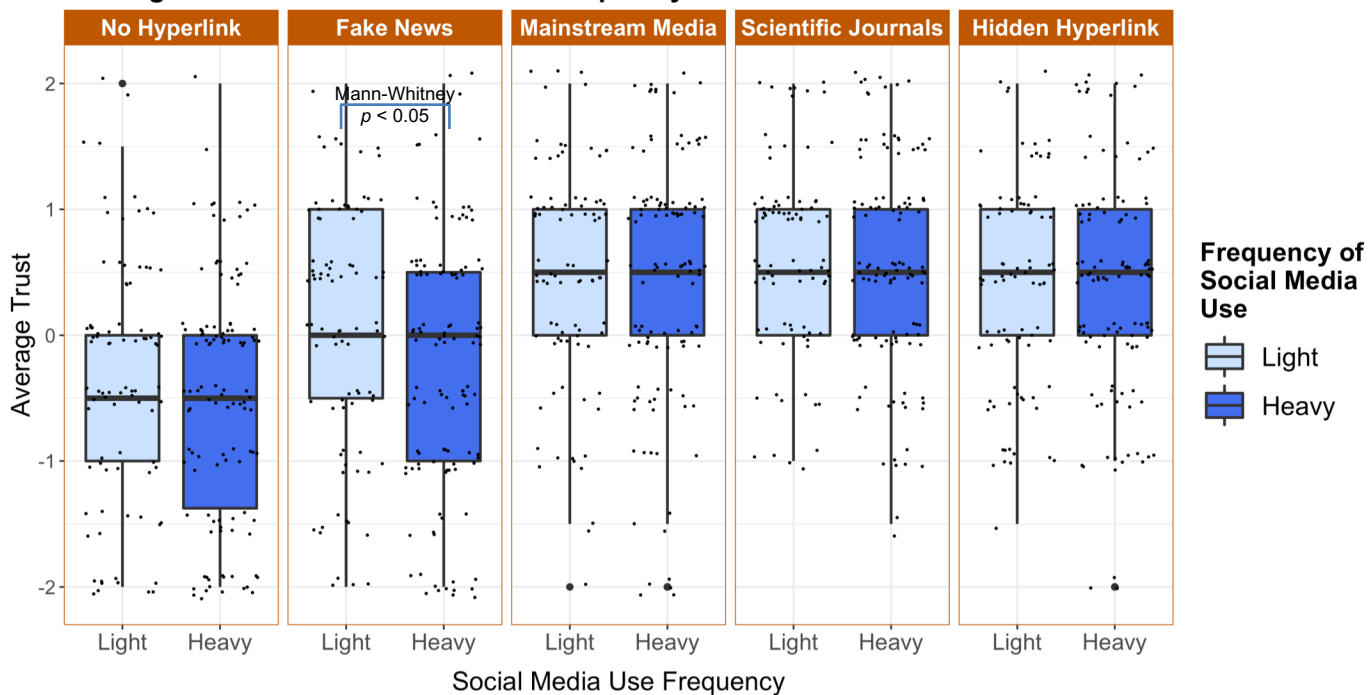
Political Leaning

Average Trust vs. Political Leaning



Frequency of Social Media Use

Average Trust vs. Social Media Use Frequency



The Overarching Question

What is the user experience of fake news?

Specific Research Questions

- How do people interact with content on online news outlets?
- What features of online news outlets affect their credibility and trustworthiness?
- Do values influence people's interaction with online news outlets?
- Does frequent social media use improve people's ability to differentiate fake news from fact-based news?
- Do users examine the URL of a hyperlink (to an external source) before clicking on it?

Proposed Future Work

- Experimental study in a usability lab environment
- Measurement of physiological responses to on-screen stimuli
 - Eye Tracking
 - Facial Expression Recognition

Proposed Future Work

- Eye Tracking
 - To study relationship between cognitive activity and trust behavior
 - Which visual elements users focus on and which not
 - Estimation of cognitive effort applied
- Facial Recognition
 - Observe valence of emotions/responses to stimuli
- Retrospective Verbal Protocol
 - To collect qualitative data about users' own experiences while evaluating trustworthiness of news webpages

Preliminary Hypotheses

- Long fixations on the hyperlink followed by a decision not to click on the hyperlink will be negatively associated with trust.
- Participants who have negative facial expressions when fixating on a hyperlink, whether or not they click on the hyperlink, will have lower trust.
- The explicit requirement to provide a trust rating will be associated with higher cognitive load than when just looking at the post.
- Clicking on a hyperlink has a direct relationship with cognitive load (i.e., clicking is associated with high cognitive load, and not clicking is associated with low cognitive load).

Learn More

- Our presentation on “Demographic Factors and Trust in Different News Sources”
- Monday, November 12th 14:30h

Thank You!

- Questions
- Feedback
- Contact us:
 - Nitin Verma (nitin.verma@utexas.edu)
 - Kenneth R. Fleischmann (kfleisch@ischool.utexas.edu)
 - Kolina S. Koltai (koltai@utexas.edu)

Further Reading

1. Verma, N., Fleischmann, K. R., & Koltai, K. S. (2018). Demographic Factors and Trust in Different News Sources. *Proceedings of the Association for Information Science and Technology*.
2. Verma, N., Fleischmann, K. R., & Koltai, K. S. (2017). Human values and trust in scientific journals, the mainstream media and fake news. *Proceedings of the Association for Information Science and Technology*, 54(1), 426–435.
<https://doi.org/10.1002/pr2.2017.14505401046>
3. Fleischmann, K. R. (2014). *Information and human values*.
4. Price, V. (1992). *Public Opinion*. SAGE.